

DOCUMENT RESUME

ED 252 191

IR 011 452

AUTHOR Wiley, Ann L.
TITLE Building Design and the Architect: An Instructional Module.
PUB DATE 30 Jun 82
NOTE 16p.
PUB TYPE Guides - Classroom Use - Materials (For Learner) (051)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Architects; Architectural Drafting; *Building Design; *Design Requirements; *Educational Facilities Planning; *Facility Guidelines; Facility Requirements; Higher Education; Independent Study; Information Sources; Learning Modules; *Program Development; Teaching Methods

ABSTRACT

This self-instructional module presents learner objectives, text, practice exercises, and answer sheets on the development of the kind of building program that would be used by architects in designing a new building or training area for a school, college, or business. The text explains the components of a building program, including the basic educational objectives for the facility, how the programs will be implemented, curriculum emphases, times that the areas will be used, general ability level of the learners, teaching staff preferences for methods and materials, and any atypical problems of maintenance, lights, temperature, air movement, and number of students. Also addressed are the building program committee, writing the building program, the role of the instructional technologist in building program development and building design, pitfalls in building program development and design, and architectural services. A 12-item test is included. (LMM)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

BUILDING DESIGN AND THE ARCHITECT: An Instructional Module, Prepared by Ann L. Wiley at the Rochester Institute of Technology for ICIT 745, Instructional Facilities Design and ICAV 560, Media Facilities Design.

This is an unpublished work in which copyright subsists. Ann L. Wiley, June 30, 1982.

Objectives:

After reading the module, the learner will be able to:

1. Name five components of any building program.
2. Name three ways a building program committee may be assembled.
3. Give a reason why educators must be involved in building program development, and a reason why architects like to be.
4. Identify the necessary focal point of every building program for an educational facility.
5. Name three general considerations of the committee in developing a building program.
6. Name three sources of information which the committee can use in doing research for development of the building program.
7. State two reasons why instructional technologists are good links between educators and architects.
8. Name a contribution the instructional technologist can make to completing the tasks involved in writing a building program.
9. Name a contribution an instructional technologist can make if asked to review preliminary plans. If asked to review plans just before they go out for bids?
10. Identify three mistakes to be avoided in building program development and building design.
11. Name five stages in transforming a building program into a building design, in chronological order.
12. Name five services an architect is likely to perform.

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Ann L. Wiley

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Abstract: The module consists of a short text with practice excercises. The text concerns the following: Components of a Building Program, The Building Program Committee, Writing the Building Program, The Role of the Instructional Technologist in Building Program Development and Building Design, Pitfalls in Building Program Development and Design, and Architectural Services.

Description of test: The test consists of twelve items which are identical to the objectives.

Text and Practice Exercises:

Components of a Building Program

Whenever any school, college, or business decides to develop a new building or training area, a building program must be prepared. The architect uses that program as a basis for designing the new facility. The program must explain what the owner wants to do in the facility, in language the architect can understand.

A building program includes at least the following information:

- basic educational objectives to be sought in the facility
- how the programs will be implemented
- curriculum emphases
- time areas will be used
- general ability level of the learners
- preferences of teaching staff for methods, materials
- any atypical problems of maintenance, light, temperature, air movement, number of students. (Lewis, 1970; Knirk, 1979).

The Building Program Committee

The group which draws up the building program, or educational specifications, may be assembled in several ways. The chief executive officer may appoint a committee of faculty or trainers. A consulting firm may be involved. An architectural firm may prepare the specifications (Lewis, 1970).

If a committee of educators does the work, architectural firms like to be involved. Educators do not usually have the expertise to prepare a workable building design on their own (Finkel, 1981). This lack of expertise can cause problems in the program development phase too. When the architect is involved in building program development, the program is finalized as the design is begun. In that way, practical design considerations are taken into account, while the architect has the greatest period of time in which to consider the building program and allow the program to stimulate creativity (Facilities programming, 1970). Educators should be involved with the architect in developing the building program in order to avoid design of a beautiful building which is not functional because the needs of the learners have been overlooked (Finkel, 1981).

Practice Exercises:

Answer the following questions on a separate piece of paper. When you have finished noting your answers, compare them to the correct answers, which appear on the next page.

1. Give five components of any building program.
2. Name three ways a building program committee may be assembled.
3. Give a reason why educators must be involved in building program development, and a reason why architects like to be involved.

Answers

1. Give five components of any building program.

basic educational objectives to be sought in the facility
how the programs will be implemented
curriculum emphasis
time areas will be used
general ability level of the learners
preferences of teaching staff for methods, materials
any atypical problems of maintenance, light, temperature, air
movement, number of students

2. Name three ways a building program committee may be assembled.

- group of faculty or trainers
- consultant
- architectural firm

3. Give a reason why educators must be involved in building program development, and a reason why architects like to be involved.

educators must be involved so that:

- learner's needs will be taken into account.
- educational activities will be considered
- having a beautiful, nonfunctional building will be avoided
- any other similar response is acceptable

architects like to be involved because:

- educators lack expertise in building design
- design considerations play a part
- maximum exposure to the building program is achieved to stimulate creativity
- any other similar answer

Writing the Building Program

It is critical that sufficient time be allowed for developing the building program, since planning a new educational facility is complicated and requires attention to hundreds of details. It is easy to overlook the most important person who will use the new facility - the learner. The learner must be the focal point of every building program.

In writing a building program the committee should concentrate on identifying teaching and learning strategies and designing a facility to allow implementation of those strategies. The committee should keep the educational objectives in mind and avoid trying to settle all the details. It is useful to keep these questions in mind: Why is this being done? Is this what we want? How are the learners benefitting? Are the learners going to benefit the way we intend?

There are several sources which can provide information needed to write a building program. Those sources are learners, instructors, and the larger community, which can say what it wants the learners to achieve and what services the facility should provide for the community as a whole. As the building program develops it must be reviewed periodically with each group (Lewis, 1970). Caution must be exercised in the way these groups are approached for information. Frequently weaknesses in building design result from inadequate objective research into needs of potential users of the structure. It is not sufficient to send out a questionnaire asking learners, instructors, and community members what they want. They do not know what they want, and they will interpret any specific questions designed to elicit the information in a variety of ways (Finkel, 1981). Information is best gathered in a series of meetings with both educators and the architect participating in the questioning.

The Role of the Instructional Technologist in Building Program Development and Building Design

The building program must be written in language the architect can understand. Instructional technologists and instructional developers are excellent links between faculty members or trainers and architects. Instructional technologists know the needs of educators and are familiar with the concerns of architects - acoustics, lighting, electrical services, plumbing, heating, layout and space relationships.

In developing a building program the committee must perform a number of tasks with which instructional technologists are well qualified to help. The committee must describe the activity which will take place in each space and consider every possible use of educational media in each space. The building program must describe the best places to use media and establish the basis for selecting and installing equipment and an electronic distribution system (Ely, 1970). Specifications for media systems are developed in a series of meetings involving staff, administrators, and members of the community as a whole (Lewis, 1970).

Although instructional technologists can contribute a great deal to developing the building program, management does not always ask instructional technologists to join the building committee. Instructional technologists and instructional developers should always ask to be put on the committee when a new facility is being planned.

In order to be effective as members of a building committee, instructional technologists must be able to imagine implementing a range of teaching strategies and the greatest possible variety of media in every space, to describe the best conditions for using each strategy and type of media, and to consult with electronics experts on developing and installing distribution systems and on selecting equipment.

An instructional technologist must raise questions at every point about what is being provided in the building. They can provide valuable suggestions even if they are not part of the building committee. If asked to approve preliminary plans, instructional technologists can make suggestions about the relationship among spaces and provisions for using media, especially electrical circuits and outlets. If the plans are just about to go out for bids, the instructional technologist can still check to see that sufficient circuits and outlets have been planned, and see that conduit for cable runs from a central distribution area (Ely, 1970).

Practice Exercises:

Answer the following questions on a separate sheet. When you have finished noting your answers, compare them to the correct answers on the following page.

1. Identify the necessary focal point of every building program for an educational facility.
2. Name three general considerations of the committee in developing a building program.
3. Name three sources of information which the committee can use in doing research for development of the building program.
4. State two reasons why instructional technologists are good links between educators and architects.
5. Name a contribution the instructional technologist can make to completing the tasks involved in writing a building program.
6. Name a contribution an instructional technologist can make if asked to review preliminary plans. If asked to review plans just before they go out for bids?

Answers

1. Name the necessary focal point of every building program.
the learner.

2. Name three general considerations of the committee in developing a building program.

identifying teaching and learning strategies
designing a facility to allow implementation of these strategies
keep educational objectives in mind

3. Name three sources of information which the committee can use in doing research for development of the building program.

learners
instructors
the community

4. State two reasons instructional technologists are good links between educators and architects.

know needs of educators
are familiar with concerns of architects in building design

5. Name a contribution the instructional technologist can make to completing the tasks involved in writing a building program.

help describe activity which will take place in each space
help consider every possible use of media in each space
help describe the best places for use of media
establish with help of electronics consultant how equipment will be selected
and installed and what kind of distribution system will be installed

6. Name a contribution an instructional technologist can make if asked to review preliminary plans.

suggest improvements in electrical service
suggest changes in relationships among spaces

If asked to review plans just before they go out for bids?

suggest changes in electrical service
be sure conduits for communications links are running from a central place

Pitfalls in Building Program Development and Design

There are numerous mistakes to be avoided in developing a building program. Educators should not play architect by making detailed sketches. Such sketches inhibit the creativity of the architect. The committee should be concerned with general questions like total space available, relationships among space and equipment needed (Lewis, 1970).

Audiovisual equipment should be selected because it will be used. Equipment which is so sophisticated that faculty or trainers do not know how to use it or will be burdened by trying to use it effectively should be avoided.

Programs should not be developed nor buildings designed based on tours of existing facilities alone. Building program committees may assume that existing facilities were developed based on objective consideration of learner needs and creative approaches to building design. That probably is not the case.

Many splendid looking buildings are designed without considering the most important function of the facility. All the details of design must contribute to the overall effectiveness of the facility in enabling the learner to reach objectives. Important details include shape and color of the rooms, height of the ceilings, relationship of spaces, furnishings, and the arrangement of furnishings, and audiovisual equipment (Finkel, 1981).

Practice Exercises

Answer the following question. When you have noted your answer, compare it to the correct answer which appears on the following page.

1. Identify three mistakes to be avoided in building program development and building design.

Answer

1. Identify three mistakes to be avoided in building program development and building design.

- playing architect
- installing overly sophisticated audiovisual equipment
- basing programs and designs exclusively on tours of existing facilities
- planning a beautiful but non-functional building
- failure to make all details contribute to the overall effectiveness of the structure in enabling the learner to meet objectives

Architectural Services

The building program is transformed into a building design in a series of steps, several of which may overlap:

- select architect
- give architect the educational specifications and discuss
- select site
- prepare preliminary plans
- present final plans, specifications, cost estimates to the board
- submit final plans, specifications, cost estimates to the voters if necessary
- have final plans approved by appropriate government bodies
- accept competitive bids
- begin construction

Architects usually provide the following services, although arrangements may vary.

TRANSLATE LEARNING SPECIFICATIONS INTO ARCHITECTURAL SPECIFICATIONS.

PREPARE PRELIMINARY SKETCHES. These can be checked with government agencies which must approve final plans.

DESIGN WORKING DRAWINGS, SPECIFICATIONS.

DEVELOP DETAILED DRAWINGS FOR ARCHITECTURAL, STRUCTURAL, MECHANICAL WORK.

These drawings remain the professional property of the architect. The detailed drawings serve as the basis for obtaining bids on the mechanical work. Drawings must show a building which conforms to all local codes and applicable safety standards.

ASSIST IN DRAFTING PROPOSALS, CONTRACTS. Supervise bidding, help evaluate proposals and contracts.

ISSUE CERTIFICATES OF PAYMENT. Authorize payment of contractors as work progresses. It is customary to withhold 10-15% from each contractor pending satisfactory completion of the work.

KEEP ACCOUNTS.

SUPERVISE THE CONSTRUCTION. The extent should be explained in the architect's contract in detail. The architect tries but does not guarantee to guard against defects in contractor's work. The architect interprets detailed drawings to contractors, and issues supplementary drawings and instructions for contractors to follow. The architect also inspects any mechanical drawings prepared by contractors. The architect obtains all building permits, and must be given the authority to make minor changes and to obtain estimates for major changes. Because changes are costly, they are held to a minimum. Typically, changes result in an additional 2-5% of the total contract being required. The owner must plan on spending this additional amount.

PROVIDE AND INSTALL FURNISHINGS AND MOVEABLE EQUIPMENT. A percentage fee is charged for selection.

INSPECT THE PROJECT WITH CONTRACTORS BEFORE COMPLETION, ALONE AFTER COMPLETION, AND AGAIN ONE YEAR FROM COMPLETION.

The architect's contract should state specifically which services are to be provided, to what extent, and when.

In addition, the contract should explain clearly how fees are to be assessed and when they are due.

Usually fees are computed as a percentage of total project cost, and 50% is due when final plans are approved. The manner in which travel will be reimbursed, engineers will be paid, and other specialists will be retained must also be specified.

A means of mediating and arbitrating disputes and a means of terminating the contract on the basis of payments already made must also be included in the contract. (Knirk, 1979).

Practice Exercises

Answer the following questions. When you have noted your answers, compare them to the correct answers which are on the following page.

1. Name five stages in transforming a building program into a building design, in chronological order.

2. Name five services an architect is likely to perform.

Answers

1. Name five stages in transforming a building program into a building design, in chronological order.

---- any five of the following

- select architect
- give architect educational specifications and discuss
- select site
- prepare preliminary plans
- present final plans, specifications, cost estimates to board
- present same to voters if necessary
- have final plans approved by government agencies
- accept competitive bids
- begin construction

2. Name five services an architect is likely to perform.

---- any five of the following

- translate learning specifications into architectural specifications
- prepare preliminary sketches
- design working drawings, specifications
- develop detailed drawings for architectural, structural, mechanical work
- assist in drafting proposals, contracts
- issue certificates of payment
- keep accounts
- supervise the construction
- provide and install furnishings, moveable equipment
- inspect - semi-final, final, and one year after completion

alw
3-82

REFERENCES

Ely, Donald P. The instructional technologist; facilitator of facilities planning. *Audiovisual Instruction*, 1970, (Oct.), 36,41.

Facilities programming. *Audiovisual Instruction*, 1970, (Oct.), 75-76.

Finkel cites six common errors in facilities design. *Training and Development Journal*, 1981, 35(2), 6-7.

Knirk, Frederick G. Designing productive learning environments. Englewood Cliffs, NJ: Educational Technology, 1979. Chapters Three and Four: Translating learning specifications into architectural specifications, and Site planning and development for new facilities, pp. 33-53, and Appendix F: Architect Selection Checklist, pp. 151-53.

Lewis, Phillip. The educator-architect team. *Audiovisual Instruction*, 1970, (Oct.), 52-55.

TEST: BUILDING DESIGN AND THE ARCHITECT

Please write your answers on a separate sheet of paper.

- 5 1. Name five components of any building program.
- 3 2. Name three ways a building program committee may be assembled.
- 2 3. Give a reason why educators must be involved in building program development, and a reason why architects like to be.
- 1 4. Identify the necessary focal point of every building program for an educational facility.
- 3 5. Name three general considerations of the committee in developing a building program.
- 3 6. Name three sources of information which the committee can use in doing research for development of the building program.
- 2 7. State two reasons why instructional technologists are good links between educators and architects.
- 1 8. Name a contribution the instructional technologist can make to completing the tasks involved in writing a building program.
- 2 9. Name a contribution an instructional technologist can make if asked to review preliminary plans. If asked to review plans just before they go out for bids?
- 3 10. Identify three mistakes to be avoided in building program development and building design.
- 5 11. Name five stages in transforming a building program into a building design, in chronological order.
- 5 12. Name five services an architect is likely to perform.

35-33 A

32-30 B

Below 30 study and retake test

BEST COPY AVAILABLE